

IN THE CLAIMS:

1-31. (Cancel)

32. (New) An internal combustion engine with a laser ignition device, comprising a Q-switched, pumped solid-state laser with a pulsed pumped light source, a solid laser crystal embedded in a resonator, a Q-switch for increasing the power density, at least one output mirror and a focusing device, by means of which the laser beam may be focused in a combustion chamber, wherein the pumped light source, resonator plus laser crystal, Q-switch, output mirror, focusing device and a cooling device for cooling the resonator are integrated in a single component which can be inserted into a spark-plug shaft.

33. (New) The internal combustion engine according to claim 32, wherein the Q-switch is provided with a passive configuration.

34. (new) The internal combustion engine according to claim 32, wherein the focusing device comprises a single focusing lens.

35. (New) The internal combustion engine according to claim 32, wherein the cooling device comprises at least two different cooling systems.

36. (New) The internal combustion engine according to claim 35, wherein the cooling device comprises three different cooling systems.

37. (New) The internal combustion engine according to claim 32, wherein the resonator comprises at least one Peltier cooling element for cooling the pump diodes.

38. (New) The internal combustion engine according to claim 37, wherein the resonator comprises at least one outer second coolant circulation for dissipating the heat from the Peltier cooling element.

39. (New) The internal combustion engine according to claim 32, wherein the resonator comprises an inner first coolant circulation for cooling the laser crystal.

40. (New) The internal combustion engine according to claim 32, wherein the laser crystal is enclosed by at least one first cooling channel.

41. (New) The internal combustion engine according to claim 40, wherein the first cooling channel is annular shaped.

42. (New) The internal combustion engine according to claim 32, wherein the pumped light source is formed by pump diodes.

43. (New) The internal combustion engine according to claim 42, wherein several pump diodes are arranged in a concentric manner about the laser crystal.

44. (New) The internal combustion engine according to claim 43, wherein at least three pump diodes are arranged evenly about the laser crystal.

45. (New) The internal combustion engine according to claim 43, wherein at least six pump diodes are arranged evenly about the laser crystal.

46. (New) The internal combustion engine according to claim 42, wherein upon cold starting the pump diodes can be heated to operating temperature by the Peltier cooling element.

47. (New) The internal combustion engine according to claim 42, wherein the pump diodes are connected in series.

48. (New) A Q-switched, pumped solid state laser, especially for a laser ignition device of an internal combustion engine, comprising a pulsed pumped light source formed by pump diodes, a solid laser crystal embedded in a resonator, a Q-switch for increasing the power density, at least one output mirror and a focusing device, with a cooling device being provided comprising at least one Peltier cooling element for cooling the resonator, wherein the cooling device comprises at least two different cooling systems, with Peltier cooling elements being associated with the first cooling system for cooling the pump diodes.

49. (New) The solid state laser according to claim 48, wherein the cooling device comprises three different cooling systems.

50. (New) The solid state laser according to claim 48, wherein the resonator comprises an inner coolant circulation associated with the second cooling system for cooling the laser crystal.

51. (New) The solid state laser according to claim 50, wherein the laser crystal is enclosed by at least one first inner cooling channel of the inner coolant circulation.

52. (New) The solid state laser according to claim 51, wherein the first inner cooling channel is annular shaped.

53. (New) The solid state laser according to claim 48, wherein the resonator comprises at least one outer coolant circulation associated with the third coolant system for dissipating the heat from the Peltier cooling system.

54. (New) The solid state laser according to claim 48, wherein several pump diodes are arranged in a concentric manner about the laser crystal.

55. (New) The solid state laser according to claim 54, wherein at least three pump diodes are arranged evenly about the laser crystal.

56. (New) The solid state laser according to claim 54, wherein at least six pump diodes are arranged evenly about the laser crystal.

57. (New) The solid state laser according to claim 48, wherein the pump diodes are connected in series.

58. (New) The solid state laser according to claim 48, wherein the pump diodes are enclosed by a heat dissipater.

59. (New) The solid state laser according to claim 58, wherein the heat dissipater is arranged between the pump diodes and the Peltier cooling elements.

60. (New) The solid state laser according to claim 48, wherein the heat dissipater is arranged in a concentric manner about the laser crystal.

61. (New) The solid state laser according to claim 48, wherein the heat dissipater is consisting of copper.

62. (New) The solid state laser according to claim 48, wherein the pump diodes are enclosed by at least one row of first outer cooling channels of the first coolant circulation arranged in the direction of the axis of the solid state laser.

63. (New) The solid state laser according to claim 62, wherein the first outer cooling channels are arranged in the heat dissipater.

64. (New) The solid state laser according to claim 48, wherein the Peltier cooling elements are arranged in a concentric manner relative to the axis outside about the pump diodes.

65. (New) The solid state laser according to claim 48, wherein the Peltier cooling elements are enclosed by a heat exchanger of the third cooling system.

66. (New) The solid state laser according to claim 65, wherein the Peltier elements are arranged in a concentric manner relative to the axis of the solid state laser.

67. (New) The solid state laser according to claim 65, wherein the heat exchanger comprises at least one row of second cooling channels arranged in a substantially concentric manner about the same and in the direction of the axis of the solid state laser.

68. (New) The solid state laser according to claim 48, wherein at least the inner coolant circulation is flowed through by a medium which is optically transparent for laser wavelength.

69. (New) The solid state laser according to claim 48, wherein the outer coolant circulation is connected with the coolant circulation of an internal combustion engine.

70. (New) The solid state laser according to claim 48, wherein upon cold starting the pump diodes can be heated to operating temperature by the Peltier cooling element.

71. (New) The solid state laser according to claim 48, wherein the Q-switch is provided with a passive configuration.

72. (New) The solid state laser according to claim 48, wherein the focusing device comprises a single focusing lens.

73. (New) The solid state laser according to claim 48, wherein the pumped light source, resonator plus laser crystal, Q-switch, output mirror, focusing device and the cooling device for cooling the resonator are integrated in a single component which can be inserted into a spark-plug shaft.